PATENT COOPERATION TREATY

PCT

REC'D 20 OCT 2005
WIPO PCT

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY
(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference	FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/NO2004/000325	International filing date *(day/month/year)* 27.10.2004	Priority date *(day/month/year)* 28.10.2003
International Patent Classification (IPC) or national classification and IPC B66C1/38, B66C1/36 // F16B45/02		
Applicant Molaug, Ole		

1. This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
2. This REPORT consists of a total of 4 sheets, including this cover sheet.
3. This report is also accompanied by ANNEXES, comprising:
   a. ☒ *(sent to the applicant and to the International Bureau)* a total of 2 sheets, as follows:
      ☒ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
      ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
   b. ☐ *(sent to the International Bureau only)* a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in electronic form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).
4. This report contains indications relating to the following items:
   - ☒ Box No. I Basis of the report
   - ☐ Box No. II Priority
   - ☐ Box No. III Non-establishment of opinion with regard to novelty, inventive step and industrial applicability
   - ☐ Box No. IV Lack of unity of invention
   - ☒ Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement
   - ☐ Box No. VI Certain documents cited
   - ☐ Box No. VII Certain defects in the international application
   - ☐ Box No. VIII Certain observations on the international application

Date of submission of the demand	Date of completion of this report
23.08.2005	05.10.2005
Name and mailing address of the IPEA/SE Patent- och registreringsverket Box 5055 S-102 42 STOCKHOLM Facsimile No. +46 8 667 72 88	Authorized officer Mariana Eddin/EK Telephone No. +46 8 782 25 00

Form PCT/IPEA/409 (cover sheet) (April 2005)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.
PCT/NO2004/000325

Box No. I Basis of the report

1. With regard to the **language**, this report is based on:

☒ the international application in the language in which it was filed

☐ a translation of the international application into _____ ,
which is the language of a translation furnished for the purposes of:

☐ international search (Rules 12.3(a) and 23.1(b))

☐ publication of the international application (Rule 12.4(a))

☐ international preliminary examination (Rules 55.2(a) and/or 55.3(a))

2. With regard to the **elements** of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☐ the international application as originally filed/furnished

☒ the description:

pages 1-9 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☒ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* 1-2 received by this Authority on 23.08.2005

pages* _____ received by this Authority on _____

☒ the drawings:

pages 1-5 as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing *(specify)*: _____

☐ any table(s) related to the sequence listing *(specify)*: _____

* *If item 4 applies, some or all of those sheets may be marked "superseded."*

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention concerns a tool for connection and disconnection of cargo. The tool comprises a lifting hook arranged to be rotatable about its suspension axis. In order to make it possible to disconnect a cargo item without assistance from a person located at the disconnection location, an actuator is arranged to rotate the hook.

Reference is made to the following document:
D1: US 4416480 A

From D1, which is considered to represent the closest prior art, a tool for connection and disconnection of a cargo item is known. The tool comprises a suspension and a lifting hook (20). The lifting hook is pivotally mounted on a horizontal pivot pin/suspension axis (21) in the suspension, and is connected to an actuator (35) via a transmission (see figure 6). The actuator is arranged to allow the hook to rotate about the pivot pin/suspension axis.

The invention according to the amended claims differs from the tool in D1 in that the lifting hook (4) is articulately connected to a middle centre-cross of a pair of double-scissors (22) by means of a middle bearing (24), a lower centre-cross of the pair of double-scissors (22) being articulately connected to the suspension (2) of the tool (1) by means of a lower bearing (26), and a transmission (44,46, 48,50, 54,60) provided for the rotating function of the hook (1) about its suspension axis (40) being releasably connectable to an upper centre-cross of the pair of scissors by means of an upper bearing (30).

.../...

Box No. V **Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement**

1. Statement

Novelty (N)	Claims	1-8	YES
	Claims		NO
Inventive step (IS)	Claims	1-8	YES
	Claims		NO
Industrial applicability (IA)	Claims	1-8	YES
	Claims		NO

2. Citations and explanations (Rule 70.7)

The invention concerns a tool for connection and disconnection of cargo. The tool comprises a lifting hook arranged to be rotatable about its suspension axis. In order to make it possible to disconnect a cargo item without assistance from a person located at the disconnection location, an actuator is arranged to rotate the hook.

Reference is made to the following document:
D1: US 4416480 A

From D1, which is considered to represent the closest prior art, a tool for connection and disconnection of a cargo item is known. The tool comprises a suspension and a lifting hook (20). The lifting hook is pivotally mounted on a horizontal pivot pin/suspension axis (21) in the suspension, and is connected to an actuator (35) via a transmission (see figure 6). The actuator is arranged to allow the hook to rotate about the pivot pin/suspension axis.

The invention according to the amended claims differs from the tool in D1 in that the lifting hook (4) is articulately connected to a middle centre-cross of a pair of double-scissors (22) by means of a middle bearing (24), a lower centre-cross of the pair of double-scissors (22) being articulately connected to the suspension (2) of the tool (1) by means of a lower bearing (26), and a transmission (44,46, 48,50, 54,60) provided for the rotating function of the hook (1) about its suspension axis (40) being releasably connectable to an upper centre-cross of the pair of scissors by means of an upper bearing (30).

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.
Continuation of: Box V

Due to these features, the tool makes use of the fact that the distance covered by the upper centre-cross relative to the suspension is twice the length of the distance covered by the middle centre-cross. This characteristic is used for loading, interlocking and releasing the hook.

The cited prior art does not give any indication that would lead a person skilled in the art to the claimed tool. Therefore, the claimed invention is not obvious to a person skilled in the art.

Accordingly, the invention defined in claims 1-8 is novel and is considered to involve an inventive step. The invention is industrially applicable.

C l a i m s

1. A tool (1) for connection and disconnection of a cargo item (8), in which the tool (1) comprises a suspension (2) and a lifting hook (4), and in which the lifting hook (4) is rotatably connected, about its suspension axis (40), to the suspension (2) , where the lifting hook (4) is connected to an actuator (22, 28, 32, 70) via a transmission (44, 46, 48, 50, 54, 60), the actuator (22, 28, 32, 70) being arranged to allow it to rotate the lifting hook (4) about the suspension axis (40), c h a r a c t e r i s e d i n that the lifting hook (4) is articulately connected to a middle centre-cross of a pair of double-scissors (22) by means of a middle bearing (24), a lower centre-cross of the pair of double-scissors (22) being articulately connected to the suspension (2) of the tool (1) by means of a lower bearing (26), and wherein a transmission (44, 46, 48, 50, 54, 60) provided for the rotating function of the hook (1) about its suspension axis (40) is releasably connectable to an upper centre-cross of the pair of scissors by means of an upper bearing (30).

2. The tool according to claim 1, c h a r a c t e r i s e d i n that the pair of double-scissors (22) is resiliently biased in the direction of its extended position by means of a spring (32).

3. The tool according to claim 1, c h a r a c t e r i s e d i n that a load-bearing guide rod (20) movable in the suspension (2) is lockable relative to the suspension (2).

4. The tool according to claim 3, characterised in that the guide rod (20) is arranged to be locked in the suspension (2) by means of a first locking arm (64).

5. The tool according to claim 4, characterised in that the first locking arm (64) is remotely releasable by means of a first trigger (68).

6. The tool according to claim 5, characterised in that the first trigger (68) is activated by means of a radio transmitter (78), a receiver (80) and a control unit (74).

7. The tool according to claim 1, characterised in that a second link arm (46), which is arranged to allow it to rotate the lifting hook (4) about the suspension axis (40) of the hook (4) by means of rotating a first link arm (44) about a connection point, is connected to a guide (50) by means of a locking joint (48).

8. The tool according to claim 7, characterised in that the direction between the connection point of the locking joint (48) substantially is perpendicular relative to the longitudinal axis of the second link arm (46) and a guideway (52) for the guide (50) when the locking joint (48) is in its locking position.